



September 2003

Welcome to the fourth edition of the **MassGIS GISette**, a bi-monthly newsletter emailed to our users and partner agencies to keep them informed of data updates, GIS events, and ongoing technology developments. This newsletter will not replace more focused emails that many of you currently receive. A page on our Web site has been created for the GISette. There you will find back issues of the GISette and an online subscription form. See <http://www.state.ma.us/mgis/GISette.htm>.

GIS DAY 2003

MassGIS and The Commonwealth GIS User Group will host annual GIS Day events on November 19th, 2003, from 10 AM to 2 PM in the Great Hall at the Massachusetts State House.

The event will have a variety of concurrent components, including: ongoing GIS computer demonstrations by GIS professionals and students from various State agencies, the Regional Planning Agencies, and academia; a map gallery; and a noontime speaking program. Some of the exhibitors will be Massachusetts Emergency Management Agency, Dr. Shirley Griffin and her students from Oakmont Regional High School, and The Old Colony Planning Council.

The speaking program will feature the Secretary of Environmental Affairs, Ellen Roy Herzfelder, who will use this opportunity to debut the new MassGIS On-Line DataViewer, OLIVER. Other elected and appointed officials will also be on hand to speak about their experiences with GIS. In order to demonstrate the essentiality of our discipline, it is very important that our friends in the GIS community turn out for this speaking program. Please join us. If you have any questions about the event, please contact paul.nutting@state.ma.us.

Database News

Data Updates

- [Land Use Summary Statistics](#) - 9/23/2003
Ten new tables were generated from the polygon attribute table from MassGIS' Land Use Datalayer for the years for which land use data have been collected statewide, 1971, 1985, and 1999. The 21-class MacConnell land use categories were used as the basis of the tables, which summarize, by town, acreage of each land use type, "developed" vs. "undeveloped" land, and change from 1971 to 1985 and 1985 to 1999.
- **New 1:5,000 Orthophoto Wetlands and Streams Data** - 9/8/2003

New and updated tiles. For the areas now covered please see the most current [Status Map](#).

- **Updates to DEP Datalayers and Hydrographic Layers** - 8/28/03

The DEP GIS Group has updated the following layers:

- [Public Water Supplies](#)
- [Zone IIs, IWPA](#)
- [Surface Water Protection Areas \(Zone A, B, C\)](#)
- [Sub-basins](#) – Tile 13

- **Updates to Open Space** - 8/19/2003

Various updates to several towns. See details on the [Open Space Recent Updates](#) page.

- **[Environmental Justice Populations](#)** - 7/31/2003

This new layer represents neighborhoods across the state with high minority, non-English speaking, low-income, and foreign-born populations. Data were derived from Summary File 3 at the Block Group level (Summary Level 150) from 2000 U.S. Census data). Such areas are the focus of EOE's EJ Policy, which was developed to use state resources to ensure that EJ populations receive a strong voice in environmental decision-making.

- **New "Administrative Regions" layers** - 7/30/03

Three new layers representing state agency-specific regions are now available:

- [Massachusetts Emergency Management Agency \(MEMA\) Regions](#)
- [Massachusetts Emergency Medical Services Regions](#)
- [MassHighway Districts](#)

- **NHESP Layer Updates** - 7/15/03

The Natural Heritage and Endangered Species Program has updated three layers for its 2003 Atlas: [Certified Vernal Pools](#), [Priority Habitats of Rare Species](#), and [Estimated Habitats of Rare Wildlife](#).

- **GWP and C21e Layers Updated** - 7/15/03

DEP GIS Group has updated the [Ground Water Discharge Permits](#) and [Tier Classified Chapter 21E Sites](#) datalayers.

- **Changes to Aquifers, New NPDWSA Layer** - 6/30/2003

Non-potential drinking water source area designations have been removed from the [Aquifers](#) layer and placed in their own, new statewide layer - [NPDWSA](#). NPDWSA replaces the NPDWSACC layer. See each datalayer description for complete details.

- **[Title 5 Layer](#) Updated** - 7/8/03, 6/4/03

Many tiles were modified to reflect updates to the 1:5,000 Wetlands layer.

- **Elevation Contours Data** - 6/9/03

Both the [1:5,000](#) and [1:250,000](#) layers now have an INDEX_ARC item that may be used to facilitate the display and labeling on index arcs (these appear bold on USGS topographic maps). Additionally, 1:5,000 data development is complete for the state as of 4/29/03. For details and a link to download the data please see the [datalayer description](#).

New on the Website

Land Use and Environmental Justice Statistics

The statewide land use data compiled by MassGIS comprises over 250,000 polygons, each with a classification code for at least 3 years of interest. If you're also concerned with land use change data, you could be dealing with over 1 million records! A daunting task...until now. MassGIS has processed this data and created tables to ease your pain. Both dBase tables and an Excel spreadsheet have been generated that break down the 21 primary categories of land use on a town-by-town basis. Acreage values were calculated for every land use type, for each year, and for each community. Plus, areas are also provided for a more general "developed" vs. "undeveloped" classification. For details visit the land use metadata webpage at http://www.state.ma.us/mgis/landuse_stats.htm. And look for this data to be incorporated into the [Online Mapping](#) applications in the near future as well.

In support of EOE's [Environmental Justice Policy](#), three statewide statistics tables have been created. Now you can access information about the EJ populations in each town including the number of census block groups identified, area values, the number of people affected, and which criteria combinations exist. These data are free for download from the MassGIS Environmental Justice metadata webpage at: http://www.state.ma.us/mgis/cen2000_ej.htm.

If there are other kinds of statistics that you think would be useful for MassGIS to make available, please feel free to contact Dan Marrier at daniel.marrier@state.ma.us.

"OLIVER" - [The MassGIS Online Data Viewer](#)

With this new application, you can:

- Display and query nearly all of MassGIS' data
- Download up-to-date shapefiles from our database, with legend files
- Print maps, choosing from hundreds of themes

All right over the Web!

Visit http://maps.massgis.state.ma.us/massgis_viewer/index.htm

OLIVER requires a one-time download of the free Java Web Start application. Instructions provided at the URL above.

DEP MCP (21E) *Viewer*

A DEP MCP (21E) HTML viewer is now available at <http://maps.massgis.state.ma.us/21E>
The 21e maps will be available through OLIVER soon.

Shaded Relief USGS Quad Maps

Take a virtual tour of Massachusetts using the Scanned USGS Quadrangle images, enhanced with shaded relief for a "3-D look", as your map. This application allows you to view all the USGS Quad maps for the state seamlessly, zoom in and out and pan anywhere in the Commonwealth. <http://maps.massgis.state.ma.us/MassGIS3DTopos>

Open Space Corner

Hello again Open Space Users!

More progress is being made on the new MassGIS Open Space Geodatabase. I have been discussing it with EOEA Agency GIS staff and RPA GIS staff over the summer and hope to see things going into production soon. It will be a drastic update of the existing coverage data model and will provide much needed improvements in both the characterization of the complex Massachusetts land ownership/interest issues and the editing environment itself by using the tools inherent in ArcMap. The model itself was crafted in UML in Visio that can be imported into ArcCatalog to create the Geodatabase. Most of the conceptual work is complete – now the hard part is making it work (for ArcView 3.x users as well)! Stay tuned for further developments in the Open Space Data Model.

A thanks to your trusty editor, Paul Nutting, for doing some clutch pinch-hitting. He has been helping update Conservation Restrictions filed with DCS in Open Space in between his other duties.

Meanwhile, I have been busy working on an environmental overlay model for land sites. It is a complex weighted amalgam of many environmental and regulatory data layers as well as the combined EOEA agency planning outlook. The hope is that this will enable EOEA to examine possible acquisition sites and quickly ascertain what interests there may be for a given site. As this project winds down expect a flurry of Open Space updates to come online. To check the current updates to Open Space, see http://www.state.ma.us/mgis/osp_updates.htm.

Open Space Attribute Focus: *Public Access*

The PUB_ACCESS field is used to describe legal access to a site, not the physical access. In other words, is the public allowed to visit the site? Physical access is the question of whether it is possible to get to the site or not. In the Open Space data layer, we're not concerned with how someone gets to a site, merely if it is legal to be there. In the old SCORP data of Open Space, we used to have numeric codes for public access (1-6). These have been dropped over the years for the more general text codes (Y, L, N and X). Of the

"big three" attributes (LEV_PROT, PRIMARY_PURP, and PUB_ACCESS), PUB_ACCESS has the highest degree of unknowns as it is often difficult to determine accurately.

Remember, if the codes used in the FEE_OWNER, MANAGER, or OTHER_x fields are inscrutable to you, please request from me the "osnames.doc" file that lists all abbreviations used (just shy of 1000 entries).

Did you see something in our Open Space data that isn't quite right? Let me know so I can fix it! If you need help in submitting a revision and/or addition, I'll aid you any way I can. I have been striving to clean up the data one parcel at a time and the improvements are showing.

Enjoy the autumn (& Sox in October)!

Scott Costello, MassGIS Open Space Coordinator, scott.costello@state.ma.us, 617-626-1076.

Online Mapping Tips and Tricks

It is possible to pull ArcIMS mapservices directly into ArcExplorer or ArcMap and use them with other datalayers or mapservices from other sites. ArcMap will even coordinate the projections ("project on the fly") for you if the data sources are in different projections. You may want to use these mapservices in ArcMap in order to produce a more sophisticated layout than what is currently possible in either OLIVER or the other [online viewers](#). For example, buffer rings could be added around a site in the 21e map in ArcMap. However, symbolization (colors, patterns) cannot be changed in the mapservices. Think of them more as a non-editable backdrop.

Documentation on connecting to MassGIS ArcIMS mapservices through ArcExplorer or ArcMap is available at: http://www.state.ma.us/mgis/mapserv_arc.htm.

Massachusetts City and Town Boundaries

MassGIS staff, in collaboration with the Survey Section at MassHighway, has been working on creating a new version of a municipal boundaries data layer for the Commonwealth. The new boundary layer is based on survey coordinates from the legislation describing each municipality's boundary. In the early 20th century, these coordinates were compiled and published as the 68-volume Harbor and Lands Commission Town Boundary Atlas. Since that time, the Atlas has been maintained by what is now the Survey Section at MassHighway. The survey section has updated the Atlas with boundary changes that have been enacted by the state legislature since its publication.

MassGIS started this project by creating a digital version of the survey coordinates recorded in the Atlas. The Survey Section then checked the coordinate data entry. The Survey Section also checked that all recent boundary changes were in the file and then converted

the coordinates to the NAD83 State Plane coordinate system. These data were the beginning for MassGIS' project to create the new town boundary data layer.

The new boundaries are being compiled atop the ½ meter color ortho imgs acquired in April of 2001. In addition, images of the USGS topographic quads and digital photos of large-scale maps in the original Atlas are being used for guidance where boundary lines run through water bodies or follow a road right-of-way. Once all boundaries along rights-of-way (ROW) are identified, plans or drawings of those ROW will be obtained, where available, and the relevant boundary line captured for use in the town boundary data layer. Staff at the Survey Section expects that, given the surveying techniques used to identify the coordinate locations and the conversions used to create the state plane coordinates, the horizontal accuracy of the final data layer, for most boundaries, will be about +/- three feet.

To create the new coastline that will be included with the new town boundary layer, MassGIS is collaborating with the MWRA and the Department of Environmental Protection to create a 1:5,000 scale coastal boundary. The source for this coastal boundary is the 1:5,000 scale wetlands data layer, with the boundary being interpreted as the upland side of salt marshes, tidal flats, and rocky inter-tidal zones. This project should be completed sometime in mid-2004. For more information contact MassGIS' Jennifer Inzana at jennifer.inzana@state.ma.us.

Imagery

MassGIS has recently acquired (gorgeous) 1:5,000 half-meter ortho imagery of the Elizabeth Islands, Martha's Vineyard, and Nantucket. These data are currently undergoing quality assurance checks, and will be available very soon in both Mainland and Island Zone. The true-color photography was flown in the spring of 2003, and was digitized and orthorectified by Chas H. Sells Inc., of Charlton, MA.

The 13.6 GB of data cover most of 71 tiles based on the MassGIS Orthophoto Index Grid. MassGIS will be offering both MrSID compressed versions of the individual tiles, as well as large regional mosaics. These images will also be viewable with the [MassGIS Color Ortho Imagery Viewer](#).

Additional information regarding the technical details of this project is available upon request.

Any comments or suggestions about the GISette are welcomed at paul.nutting@state.ma.us.

MassGIS-The Commonwealth's Office of Geographic and Environmental Information is located within the Executive Office of Environmental Affairs and is charged with the collection, enhancement, storage and dissemination of the Commonwealth's geographic data.

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